

**Amendments to the Claims:**

The following is a listing of the claims which replaces all prior versions and listings of claims in this application.

Listing of Claims:

1. (Currently Amended) A method of providing a signaling channel for performing one or more signaling functions at an Ethernet level wherein telecommunication is organized by using information Ethernet packets forming an information flow, the method comprises

monitoring at least one of the following: the Ethernet packets of said information flow,  
external instructions;

based on results of the monitoring, producing service packets multiplexable with the  
Ethernet information packets, and introducing into the service packets data on said signaling  
functions, the data being at least an indication of a corresponding specific one of said signaling  
functions to be performed;

forming from said service packets at least one service flow at the Ethernet level, wherein  
the service packets belonging to a specific service flow carry said indication of a corresponding  
specific one of said signaling functions;

multiplexing packets of said at least one service flow with packets of the information  
flow thus forming a combined flow; and

utilizing for the telecommunication ~~a~~ the combined flow composed from said  
information flow and one or more of said service flows ~~formed from service packets being~~  
~~compatible with said information packets, wherein the service packets belonging to a particular~~

~~service flow carry indication of a corresponding one of said signaling functions to be performed,~~ while said one or more service flows form the signaling channel at the Ethernet level.

2. (Currently Amended) A method according to Claim 1, for providing the signaling channel at the Ethernet level between a first and a second operating points in a network domain, said first and second operating point being referred to as the two basic operating points, the method comprising steps of:

- arranging at the first operating point a source adaptation element capable of receiving the information flow from a first Ethernet device,
- arranging at the second operating point a sink adaptation element capable of transmitting the information flow to a second Ethernet device,
- ~~producing~~ at the source adaptation element, producing the service packets forming said one or more service flows at the Ethernet level, and at the source adaptation element, multiplexing merging the service packets of said one or more service flows with the information packets of the information flow, thereby obtaining the combined flow with the signaling channel,
- transmitting data comprised in the combined flow via the network domain from the source adaptation element to the sink adaptation element,
- at the sink adaptation element, extracting the service packets of said one or more service flows from said combined flow and processing said service packets, thereby performing said one or more signaling functions.

3. – 4. Cancelled.

5. (Previously Presented) The method according to Claim 2, further comprising arranging one or more monitoring points between the first and second operating points.

6. (Currently Amended) The method according to Claim 2, comprising arranging between said two basic operating points at least one additional operating point comprising ~~one or more of an~~ at least one additional source or sink adaptation element ~~and one or more of an additional sink adaptation element~~, thereby forming two or more signaling channels between said two basic operating points.

7. (Previously Presented) The method according to Claim 2, wherein a span of the network domain between said two basic operating points consists of segments which belong to Ethernet only, thereby enabling creation of the combined flow in a pure Ethernet environment.

8. (Previously Presented) The method according to Claim 2, wherein a span of the network domain between said two basic operating points comprises at least one segment of a transport network, the method further comprises preserving said signaling channel during transmitting the combined flow via the transport network.

9. (Previously Presented) The method according to Claim 1, further comprising at least one step from the following list:

- mapping packets of the combined flow into frames of a transport network for transmitting said information and the service packets via the transport network,

-de-mapping frames of a transport network incorporating said combined flow, for separating thereof from said frames, thereby preserving the signaling channel at the Ethernet level.

10. (Previously Presented) The method according to Claim 8, further comprising the following steps:

- mapping packets of the combined flow into frames of the transport network for transmitting said information and service packets via the transport network,
- de-mapping frames of the transport network incorporating said combined flow, for separating thereof from said frames and processing,

thereby preserving the signaling channel at the Ethernet level.

11. (Currently Amended) The method according to Claim 1, wherein a service packet has a header, the method ~~further~~ comprising indicating a particular signaling function in ~~the~~ a header of a service packet of said service packets, and providing further data on said particular signaling function in a data field of the service packet.

12. (Previously Presented) The method according to Claim 1, wherein said one or more of the signaling functions are selected from at least the following:

- a plurality of performance monitoring functions including at least one Tandem Connection function;
- a one way and round trip delay measurement function;
- a far end status function,
- a connection integrity check function,

a buffer fill check function,

a function for enabling congestion indication and rate control.

13. – 14. Cancelled

15. (Currently Amended) The assembly ~~source-adaptation element~~ according to Claim ~~[[13]]~~18, further comprising a mapping unit for transmitting the outgoing combined flow via a transport network, thereby ensuring transmission via the transport network.

16. Cancelled

17. (Currently Amended) The assembly ~~sink-adaptation element~~ according to Claim ~~[[16]]~~18, further provided with a de-mapping block capable of obtaining said incoming combined flow from frames of a transport network which envelope the combined flow, thereby ensuring receiving the signaling channel via the transport network and analyzing thereof at the Ethernet level.

18. (Currently Amended) An assembly for creating a first signaling channel and for analyzing a second signaling channel, both first and second signaling channels intended for performing one or more signaling functions at ~~the~~an Ethernet level, the assembly comprising a source adaptation element and a sink adaptation element, wherein:  
the source adaptation element is for creating the first signaling channel and is capable of

- ~~receiving~~ monitoring at least one of the following: outgoing Ethernet information packets forming an information flow, external instructions;
- based on results of the monitoring, producing ~~one or more service flows of service packets compatible~~ multiplexable with said outgoing Ethernet information packets, introducing into the service packets data on said signaling functions, the data being at least an indication of a signaling function to be performed;
- forming from said service packets one or more service flows, wherein the service packets belonging to a ~~particular~~ specific service flow carry an indication of a corresponding specific signaling function to be performed;[[,]] and
- ~~composing~~ multiplexing from said information flow and said one or more service flows thus obtaining an outgoing combined flow with the first signaling channel formed by said one or more service flows;

the sink adaptation element is for terminating the second signaling channel and being is capable of

- receiving an incoming combined flow composed from an incoming information flow of information Ethernet packets and one or more incoming service flows, said one or more incoming service flows constituting said second signaling channel and being formed from service packets compatible multiplexed with the information packets;[[,]]
- ~~separating from~~ demultiplexing said incoming combined flow to separate there-from the one or more incoming service flows, wherein the service packets belonging to a specific service flow carry an indication of a corresponding specific signaling function to be performed; and

- analyzing ~~thereof~~ the one or more incoming service flows to perform said signaling functions respectively assigned to said service flows.

19. (Previously Presented) A system for providing a signaling channel for performing one or more signaling functions at the Ethernet level in any network domain comprising Ethernet, capable of performing the method according to Claim 1.

20. (Previously Presented) A system for providing a signaling channel for performing one or more signaling functions at the Ethernet level, utilizing the assembly according to Claim 18, wherein the first signaling channel and the second signaling channel are the same signaling channel.

21. (Currently Amended) A method for providing a signaling channel for performing one or more signaling functions at an Ethernet level wherein telecommunication is organized by using information Ethernet packets forming an information flow, the method comprises ~~utilizing a combined flow composed from said information flow and one or more service flows formed from service packets being compatible with said information packets, wherein said one or more service flows form the signaling channel at the level of Ethernet, the service packets belonging to a particular service flow carry an indication of a corresponding one of said signaling functions to be performed,~~

monitoring at least one of the following: the Ethernet packets of said information flow, external instructions;

based on results of the monitoring, producing service packets multiplexable with the Ethernet information packets, and introducing into the service packets data on said signaling functions, the data being at least an indication of a signaling function to be performed;

forming from said service packets at least one service flow at the Ethernet level, wherein the service packets belonging to a specific service flow carry said indication of a corresponding specific signaling function;

multiplexing packets of said at least one service flow with packets of the information flow thus forming a combined flow, while said one or more service flows form the signaling channel at the Ethernet level;

and wherein said one or more of the signaling functions enable achieving at least one of the following objectives for said telecommunication:

performance monitoring;

far end status indication, including remote failure indication;

remote loopback, including one way and round trip delay measurement;

link monitoring, including connection integrity check,

buffer fill check,

congestion indication and rate control.

22. (New) A set of adaptation equipment for an Ethernet network node communicating with a transport network, the set being adapted to support at least one signaling channel at an Ethernet level and comprising at least one of the following elements:

a source adaptation element for creating an outgoing signaling channel for performing one or more signaling functions at the Ethernet level; and



a sink adaptation element for terminating an incoming signaling channel for performing one or more signaling functions at the Ethernet level;

wherein

said source adaptation element comprises:

a monitor for monitoring at least one of the following: outgoing Ethernet information packets forming an outgoing information flow, external instructions;

a source function block for producing service packets multiplexable with the outgoing Ethernet information packets based on results of the monitoring, which introduces into the service packets data about said one or more signaling functions, the data being at least an indication of a specific signaling function to be performed, and which forms from said service packets one or more outgoing service flows, wherein the service packets belonging to a particular outgoing service flow carry said indication of a specific signaling function to be performed;

a multiplexer for multiplexing packets of said one or more outgoing service flows with packets of the outgoing information flow thus obtaining an outgoing combined flow with the outgoing signaling channel at the Ethernet level formed by said one or more outgoing service flows; and

a mapping block for mapping the outgoing combined flow into frames of the transport network for transporting thereof via the transport network;

and wherein

said sink adaptation element comprises:

a de-mapping block which receives frames of the transport network that envelope an incoming combined flow, and de-maps the received frames of the transport network

thus obtaining therefrom the incoming combined flow composed from an incoming information flow of information Ethernet packets and one or more incoming service flows formed from service packets multiplexed with the information packets of the Ethernet incoming flow;

a de-multiplexer for demultiplexing said incoming combined flow to separate therefrom the one or more incoming service flows constituting an incoming signaling channel at the Ethernet level, wherein the service packets of the incoming service flows comprise at least an indication of a signaling function, and wherein the service packets belonging to a particular incoming service flow carry an indication of a particular signaling function to be performed; and

a sink function block for analyzing the one or more incoming service flows to perform said signaling functions respectively assigned to said incoming service flows.